

# CONTRIBUTIONS TO THE FLORA OF WASHINGTON

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The flora of Washington is generally rather well known and has received considerable attention over the years, particularly with the completion of the comprehensive treatment, *Vascular Plants of the Pacific Northwest*, Volumes 1-5 (Hitchcock, *et al.*, 1955, 1959, 1961, 1964, 1969). However, floristic studies in the northwestern corner of the state have been relatively incomplete. This is particularly true of the Cascades north of Stevens Pass where the rugged mountain wilderness remains very inaccessible. Recent collections by the authors have provided a more complete botanical coverage of the North Cascades; and in this paper, eight new records of vascular plants and mosses are reported for Washington together with a number of significant geographical and altitudinal range extensions. Most representatives were collected in subalpine or alpine habitats, a few are lowland species.

The specimens cited are deposited in one or more of the following herbaria: G. W. Douglas (private) (GD); New York Botanical Garden (NY); Skagit Valley Community College (SV); U. S. Forest Service (FS); University of Washington (UW); and Western Washington State College (WW). Nomenclatural determinations were made by the authors unless otherwise noted. New species records are designated by an asterisk.

## VASCULAR PLANTS

***Polystichum munitum*** (Kaulf.) Presl. var. ***munitum***. Green Mountain, Snohomish Co., *Douglas* 870 (GD); Sourdough Ridge, Whatcom Co., *Douglas* 1900 (GD). This species is usually found from low to middle elevations (sea level to

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ca. 900 m) in the moist continuous forests of the region. The Green Mountain collection was taken at 1555 m elevation on a steep colluvial slope beneath an isolated tree (*Tsuga heterophylla* (Raf.) Sarg.) in the Subalpine Zone. The Sourdough Ridge collection was established beneath krummholz (*Abies lasiocarpa* (Hook.) Nutt.) at an elevation of 1920 m in the Alpine Zone. The Green Mountain collection was typical of the species while the Sourdough Ridge collection was depauperate and reached a height of only 15 cm. Both specimens had well developed sporangia.

**Pteridium aquilinum** (L.) Kuhn ssp. **aquilinum** var. **pubescens** Underw. Green Mountain, Snohomish Co., *Douglas & Pearson* 1632 (GD). A common species at lower elevations throughout Washington. The Green Mountain specimen was collected on deep well-drained soil of a steep colluvial slope at 1610 m elevation. This fern is an important component of the lush herbaceous associations found on steep colluvial slopes or avalanche tracks throughout the Subalpine Zone (Douglas, 1970).

**Carex multcostata** MacKenzie. Elephant Butte, Whatcom Co., *Douglas* 1735 (GD, FS). This collection was made on an exposed alpine ridge at 1920 m elevation. The previous known range of this species was the Cascade-Sierran region from central Washington south to the mountains of southern California, and in the mountains of eastern Oregon and adjacent Idaho (Hitchcock, *et al.*, 1969). The identification was made by Dr. F. J. Hermann.

**Carex straminiformis** Bailey. Green Mountain, Snohomish Co., *Douglas* 421, 431, 460, 551 (GD, FS). A frequent plant on mesic subalpine sites of the Green Mountain area. This species was known previously from the Sierra Nevada of California and adjacent Nevada extending north irregularly into the Cascade region to Mt. Adams in southern Washington, and disjunct in the Wasatch Mountains of Utah and the mountains of central Idaho (Hitchcock *et al.*, 1969). These specimens were identified by Dr. F. J. Hermann.



\***Carex subfusca** W. Boott. Stehekin River, Chelan Co., Douglas and Lowery 1217 (GD, FS, UW). This collection, a new record for the state, was taken from a population of several scattered specimens established on a dry gravel floodplain. The species was previously known from the Klamath region of northwestern California and southwestern Oregon to the Sierra Nevadas and the mountains of southern California, extending east to the mountains of Arizona and southwest Utah and north into the Cascades to Mt. Hood in northern Oregon (Hitchcock, *et al.*, 1969). The specimen was identified by Dr. F. J. Hermann.

\***Poa rupicola** Nash. Chowder Ridge, Whatcom Co., Taylor 762, 763 (WW). These two collections were taken at 2120 m elevation from a dry interrupted alpine meadow dominated by *Carex phaeocephala* Piper. This is the first record of this grass in Washington. Hitchcock, *et al.*, (1969) report the species is distributed from the Yukon, British Columbia and Alberta southward through the Rocky Mountains to Utah, Colorado and New Mexico, east to South Dakota, west to northeast Oregon, Nevada, the Sierra Nevadas of California, and northern Arizona.

\***Salix myrtillofolia** Anderss. Miners Ridge, Snohomish Co., Naas & Naas (SV). This collection, a new record for the state, was taken from an alpine ridge at 1920 m elevation. Its previous range extended from Newfoundland and Quebec to Alaska and British Columbia (east of the continental divide), south to California, southern Utah, Wyoming, and possibly northern Colorado (Hitchcock, *et al.*, 1964). The specimen was identified by Dr. C. L. Hitchcock.

**Salix vestita** Pursh var. **erecta** Anderss. Twin Lakes, Whatcom Co., Douglas 1950 (NY). This low shrub occurred on a wet, north facing subalpine scree slope at 1585 m elevation. It is an atypical specimen with style and stigmas too long, leaves too soon glabrous and bracts of the aments too green. The specimen is probably a hybrid between *S. vestita* var. *erecta* and possibly *S. phylicifolia* L. var. *pennata* (Ball)



Cronq. (A. Cronquist, personal communication). This species was previously known in the Rocky Mountain region from southern Alberta and adjacent British Columbia to west central Montana, the Wallowa Mountains of Oregon, and in Chelan Co., Washington (Hitchcock, *et al.*, 1964). The specimen was determined by Dr. A. Cronquist.

\***Ranunculus ficaria** L. Marietta, Whatcom Co., *Taylor* 2313, *Sundquist* 1114, 1165, 1550 (WW). These collections were all taken from a single population which forms a dense mat along the margin of a playground, previously a marsh. According to Dr. Lyman Benson who confirmed the identification, this is the first recorded collection from the Pacific Northwest in the United States although a previous collection was made in British Columbia. The species is native to Europe and sparingly introduced in North America (Fernald, 1950).

**Impatiens capensis** Meerb. Lake Whatcom, Whatcom Co. *Sundquist* 1865, 1414, 1432, others (WW). This species is well established along the moist banks of Lake Whatcom. Its occurrence in the Pacific Northwest has been previously noted by Ornduff (1966).

\***Gentiana glauca** Pall. Skyline Ridge, Whatcom Co., *Taylor* 1232 (WW) ; Skyline Ridge, Whatcom Co., *Hobbs* 12 (WW). These collections were taken at 1900 m elevation from an alpine meadow dominated by *Carex* spp. and disrupted by frost heaving. A new record for the state, this species was previously known from Alaska and Yukon extending south to British Columbia and in the Rocky Mountains to Montana. It is also known in Asia (Hitchcock, *et al.*, 1959). Mt. Garibaldi, in the southern British Columbia Coast Range, is apparently the southernmost station in British Columbia (Henry, 1915).

**Castilleja parviflora** Bong. var. **oreopola** (Greenm.) Ownbey. Yellow Aster Butte, Whatcom Co., *Douglas* 1527 (GD, NY). This collection was taken in a moist subalpine meadow at 1585 m elevation. It represents a substantial range exten-



sion, known previously from the Three Sisters Peak in Oregon to Mt. Rainier in Washington (Hitchcock, *et al.*, 1959). The specimen was identified by Dr. N. H. Holmgren.

\***Centaurea montana** L. Newhalem, Skagit Co., *Naas & Naas* (sv). The specimen was established with other members of the species in open fields of the area. This species, native to Europe (Hegi, 1954), has not previously been reported outside of cultivation in western North America.

#### MOSSES

\***Pogonatum alpinum** (Hedw.) Rohl var. **septentrionale** (Brid.) Brid. Green Mountain, Snohomish Co., *Douglas* 695 (GD). This collection was taken on a flat, poorly drained site in the Subalpine Zone dominated by a thick mat of *Carex nigricans* C. A. Mey. A new record for Washington, this moss was previously known from Greenland and Alaska, British Columbia and Colorado, as well as Europe and Asia (Grout, 1936). The specimen was identified by Dr. E. Lawton.

\***Bryum cyclophyllum** (Schwaegr.) B. S. G. Winchester Mountain, Whatcom Co., *Douglas* 734 (GD, UW). The specimen was established in a moist rock crevice at 1585 m elevation. This moss, a new record for the state, is known from Greenland and arctic America extending south to New Jersey, Pennsylvania and Wisconsin, west to British Columbia, and also occurring in Europe and Asia (Grout, 1933). The specimen was identified by Dr. E. Lawton.

**Pohlia cardotii** (Ren.) Broth. Seward Peak, Whatcom Co., *Douglas* 841 (GD, UW). This collection was taken in a poorly drained southeast basin in the Subalpine Zone. *Carex nigricans* was the sole dominant on the site. Very few collections of this species have been made and it was previously known only from Mt. Hood and Mt. Rainier (Grout, 1933). The specimen was identified by Dr. E. Lawton.

**Lescuraea saviana** (De Not.) Lawt. Green Mountain, Snohomish Co., *Douglas* 642 (GD, UW). This species occurs in



moist subalpine meadows of the area. It is a common moss in Europe but is rare in North America (Lawton, 1957) where the only previous collections were made in the Olympic Mountains and on Mt. Rainier. The specimen was identified by Dr. E. Lawton.

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